Field Artillery Transformation

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Agenda

- FDIC Organization
- Our Transformation Process within Joint and Army Transformation
- Looking at the Force Over Time from Capabilities Required Perspective
- Operational Challenges and Recent Lessons Learned
- Materiel Modernization Update for Field Artillery
- Our Focus and Challenges

FDIC Organization

Futures Development Integration Center Director

Directorate SGM

Deputy Director

Integration and Coordination

TRADOC Systems Managers

Cannons

Rockets and Missiles

Field Artillery Tactical Data Systems

TPO Sensors

Fire Support

Targeting, Metro, & Position Location

Future Force Integration & Concepts (Task Force XXI)

Battle Lab Experimentation

Admin

Requirements, Force Design, and Analysis

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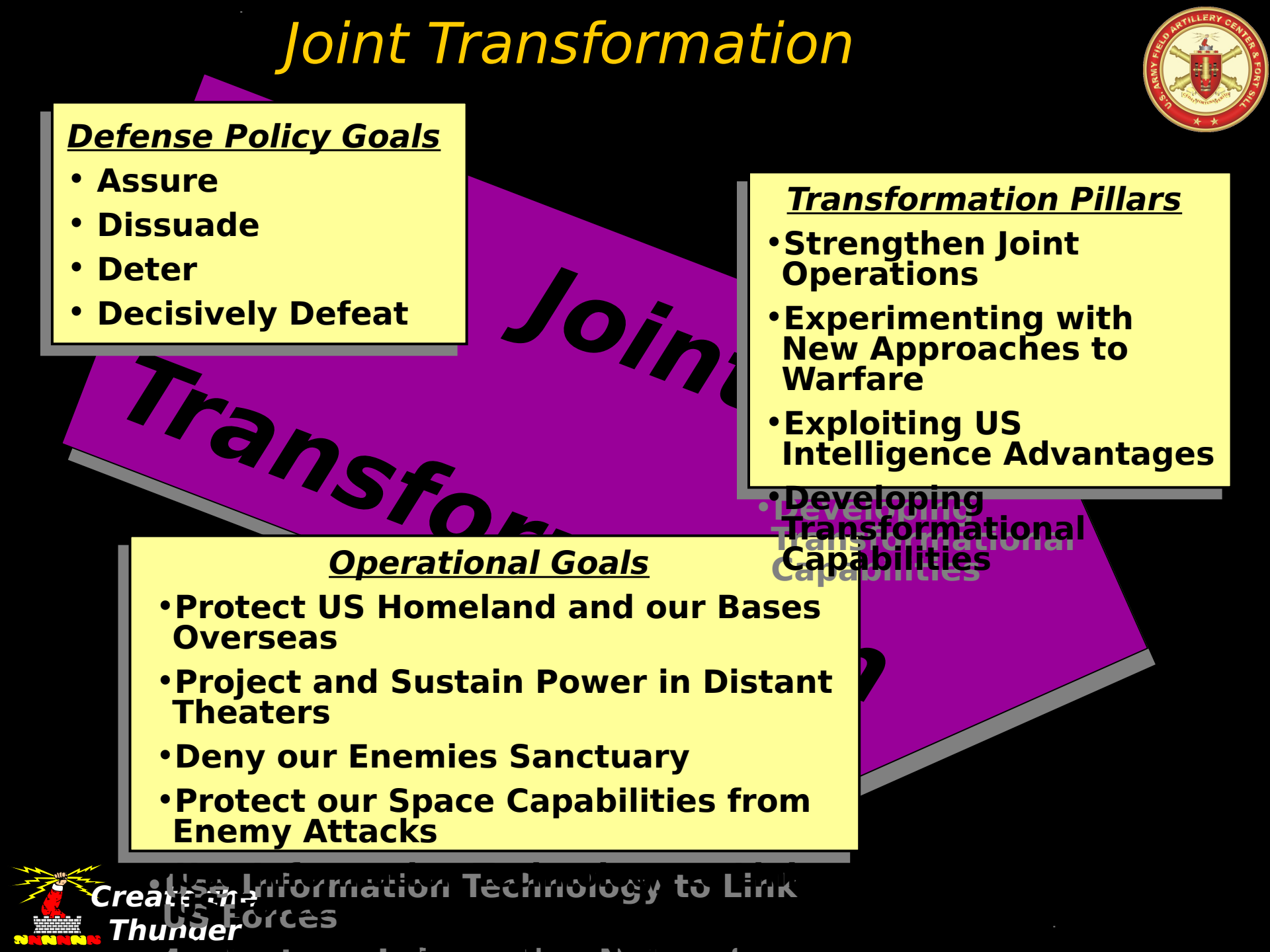
Joint Transformation



Defense Policy Goals

- **Assure**
- **Dissuade**
- **Deter**
- **Decisively Defeat**

Transformation Pillars

- **Strengthen Joint Operations**
- **Experimenting with New Approaches to Warfare**
- **Exploiting US Intelligence Advantages**
- **Developing Transformational Capabilities**

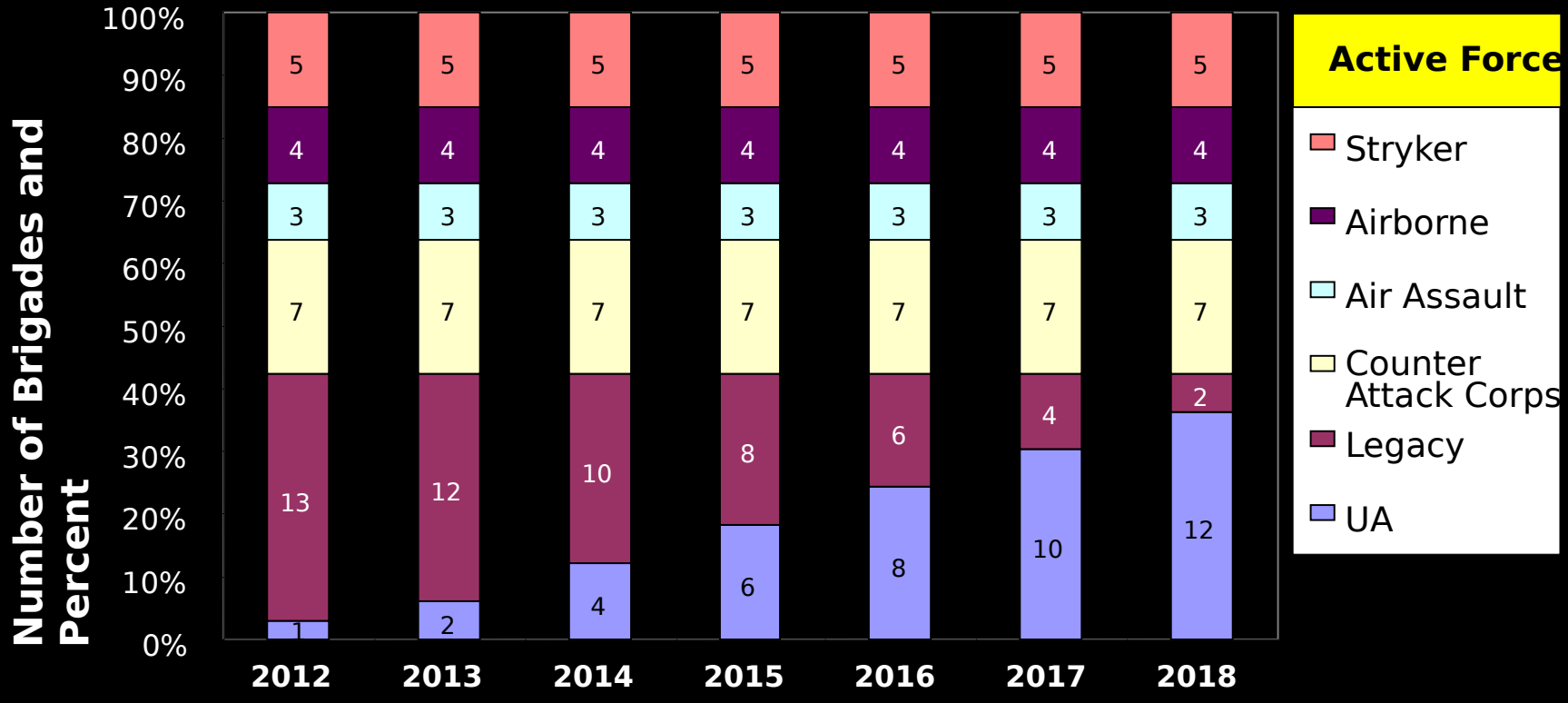
Operational Goals

- **Protect US Homeland and our Bases Overseas**
- **Project and Sustain Power in Distant Theaters**
- **Deny our Enemies Sanctuary**
- **Protect our Space Capabilities from Enemy Attacks**

Create-n-Thunder

Force Over Time

From the Welch Panel Report, 2 May 2003



The Future Force, through 2018 will be composed of a mixture of airborne and air assault brigades, modernized counterattack forces, Stryker brigades, and FCS equipped Units of Action (brigades).

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Field Artillery Transformation

Current Force

Enhanced Capabilities

Fully Networked Battle Command

Increasingly:

- Integrated
- Expeditionary
- Networked
- Decentralized
- Adaptable
- Decision Superior
- Lethal

Accelerated Development and Fielding

Future Force

Transformation

Forcible Entry

Stryker

Modernized Counter

Future Combat

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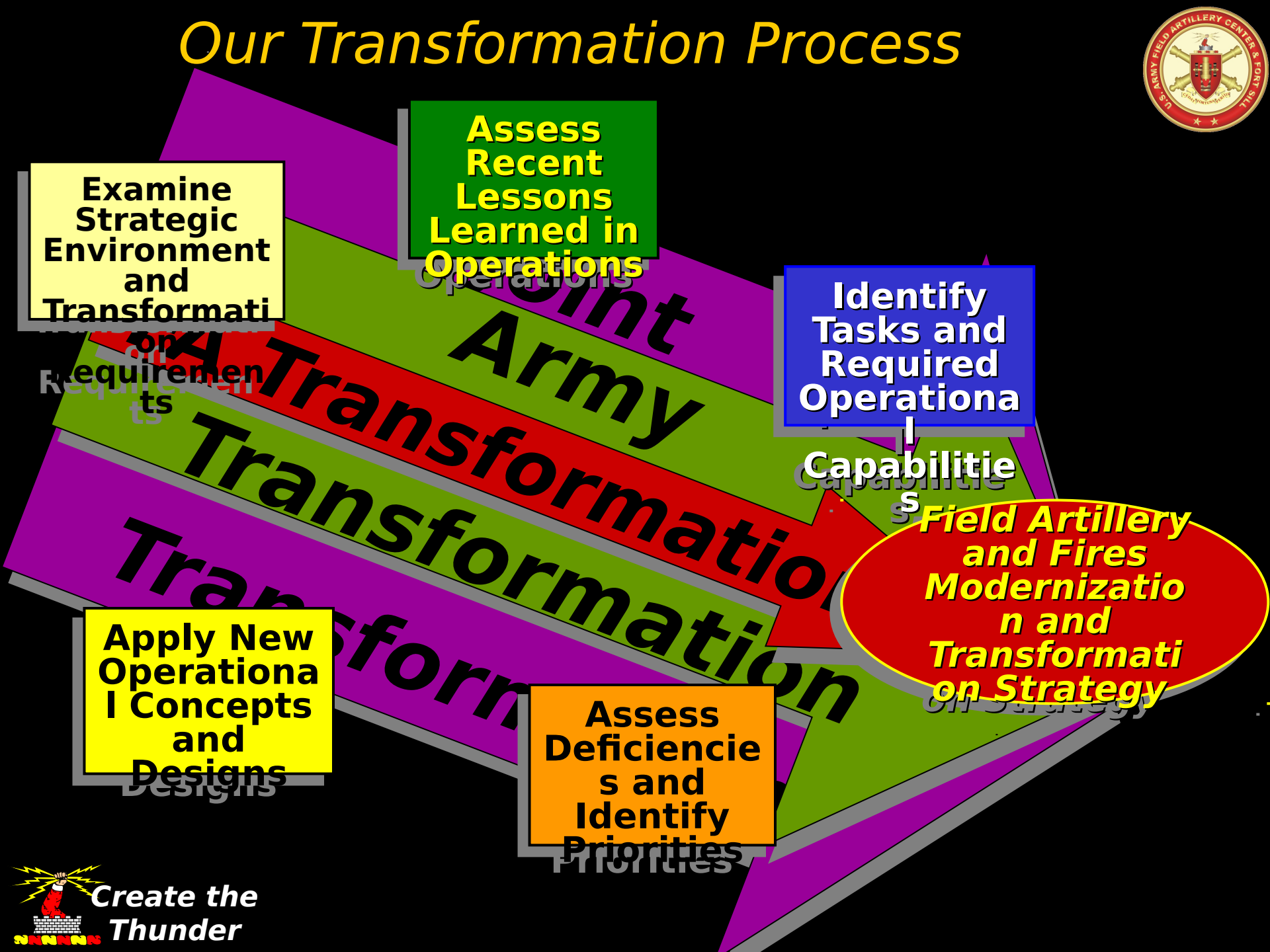
Our Transformation Process


Examine Strategic Environment and Transformation Requirements
Assess Recent Lessons Learned in Operations
Identify Tasks and Required Operational Capabilities
Field Artillery and Fires Modernization and Transformation Strategy
Assess Deficiencies and Identify Priorities
Apply New Operational Concepts and Designs
Joint Army Transformation
Transformation
Transformation

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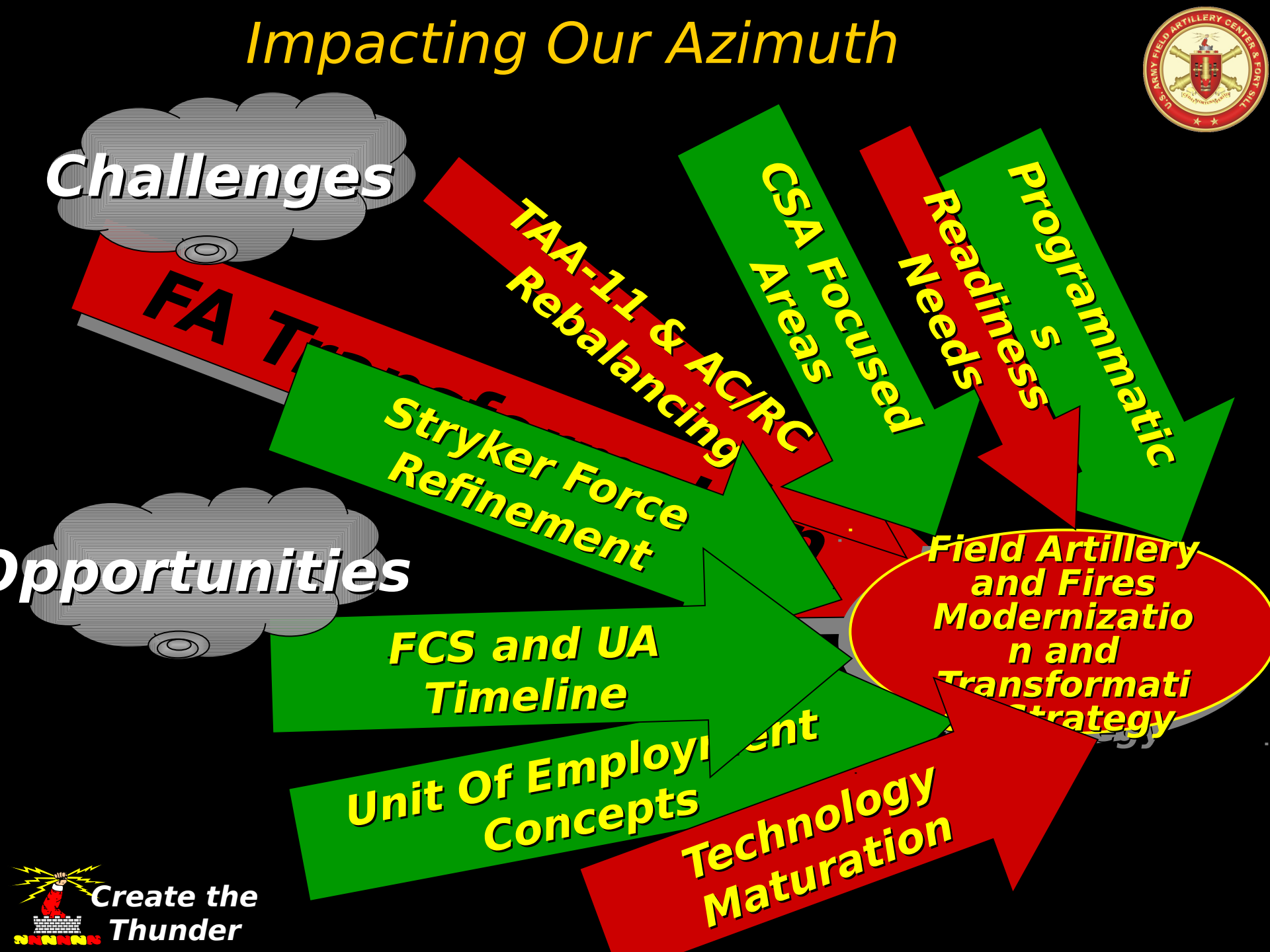
Impacting Our Azimuth



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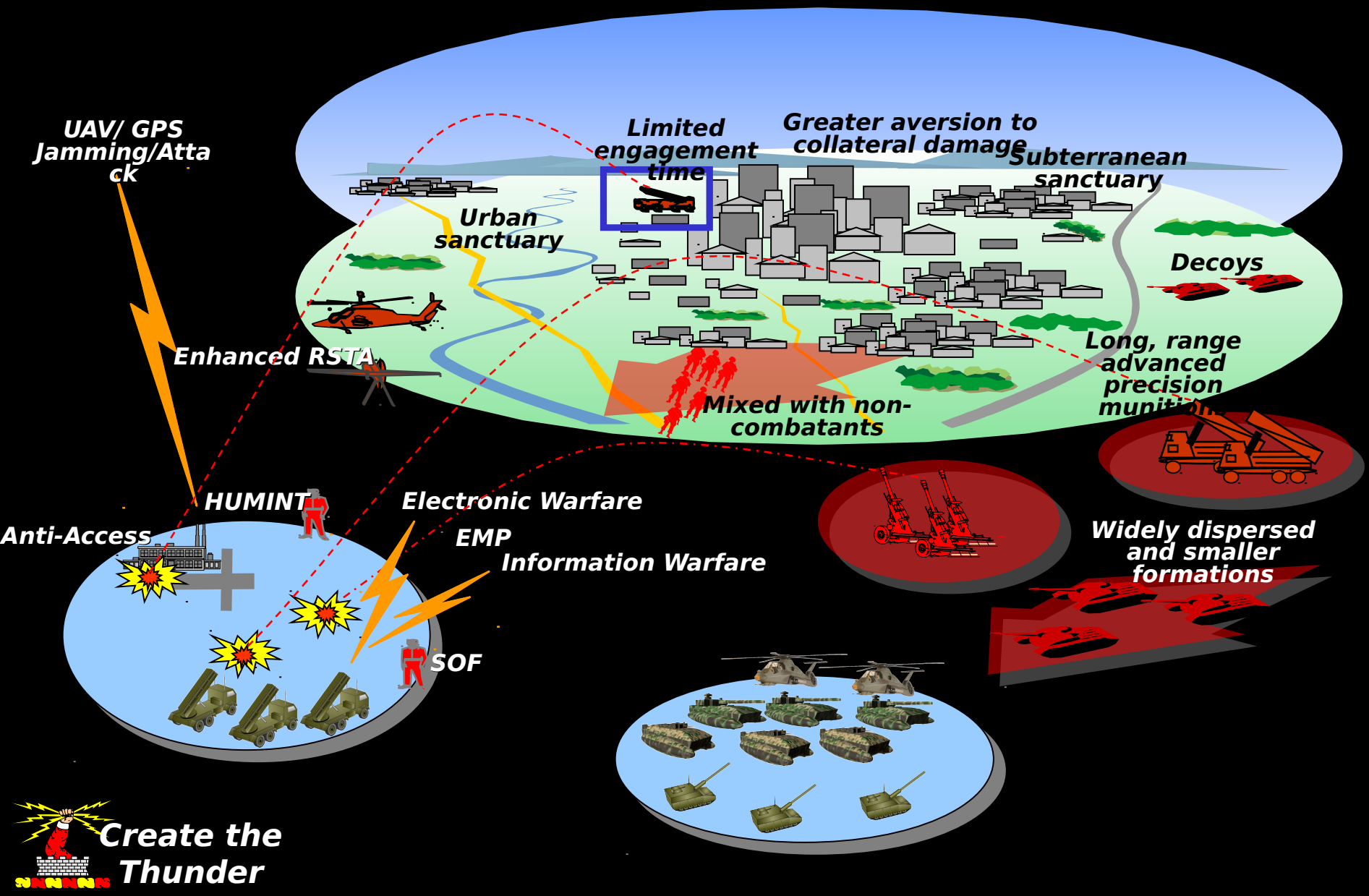
Challenges


UAV/ GPS Jamming/Attack
Limited engagement time
Greater aversion to collateral damage
Subterranean sanctuary
Urban sanctuary
Decoys
Enhanced RSTA
Long, range advanced precision munition
Mixed with non-combatants
HUMINT
Electronic Warfare
EMP
Information Warfare
Anti-Access
SOF
Widely dispersed and smaller formations
Create the Thunder

Lessons from OIF

Materiel Successes:

- M7 BFIST – speed and survivability
- LRAS3 - extremely accurate, < 10 meter TLE accuracy. Acquire > 10km
- Paladin - fire missions < 2 minutes, stop, shoot, move
- M795 HE overall munition of choice because of collateral damage concerns and fuse options. Shock effective against armored vehicles
- SADARM munition of choice for attacking vehicular targets. Three rounds per vehicle kill
- Mortars to engage targets between buildings and on roof tops in urban areas
- JDAM for CAS and precision attack of building in urban areas
- AFATDS for tactical and technical fire control
- HIMARS support to Special Operations
- IRIDIUM phones for secure commercial satellite communications

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Lessons from OIF

Materiel Areas for Improvement:

- Long range, on-the-move, voice and digital communications capability that interfaces with joint systems
- Effective BCOTM capability that includes vehicles, C² systems, radios and telescoping mast antennas
- Dud rate of DPICM
- Suite of extended range MLRS munitions that includes unitary and obscuration capabilities
- Organic UAVs at division and corps for targeting
- Improved optical, lasing and thermal imaging devices that exceed maneuver capabilities for BFIST, COLT, and dismounted observers
- Additional radars for counterfire operations

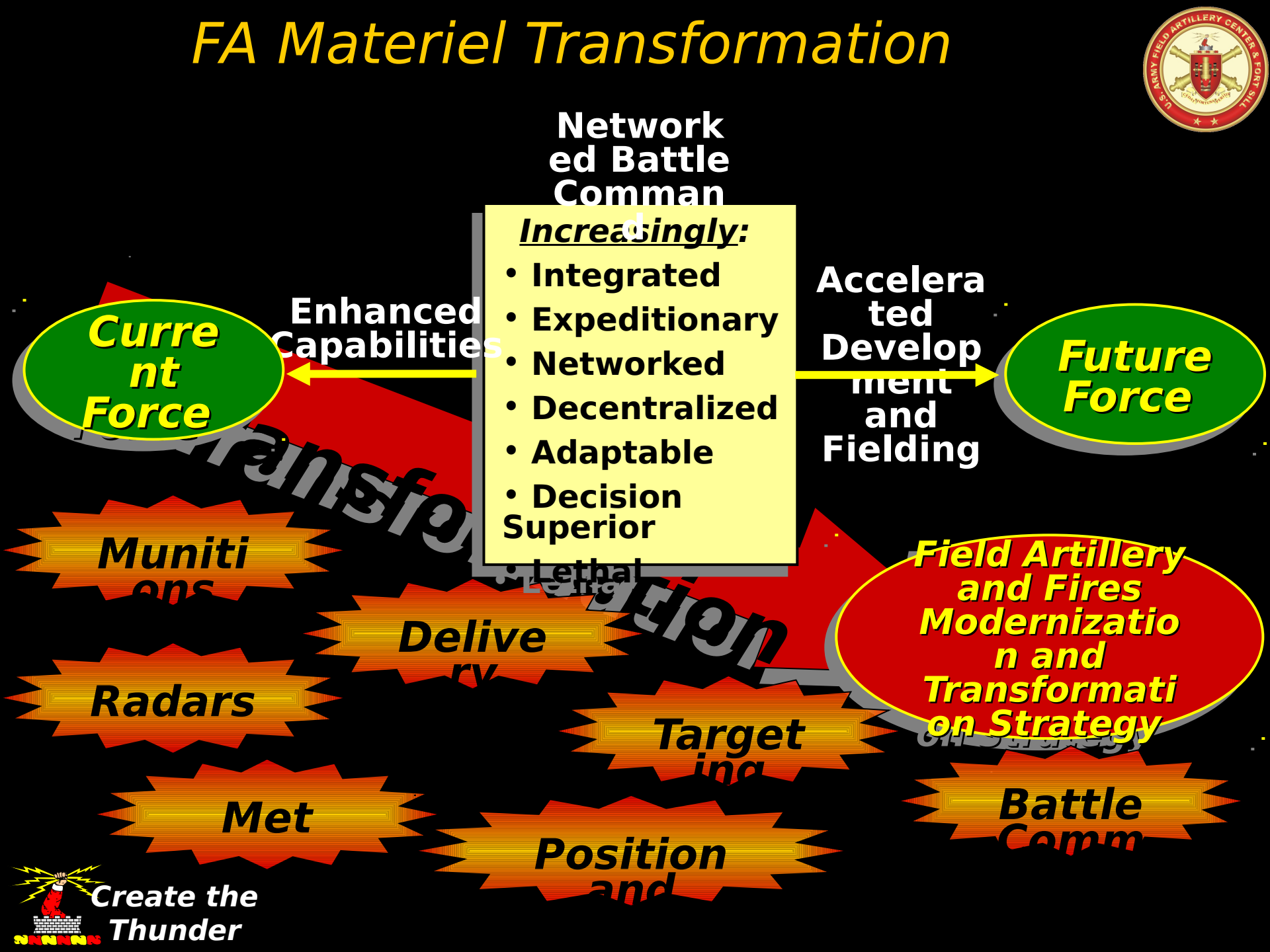
What Experimentation Suggests

- Need a mix of capabilities in almost every area
- Networked battle command enables transformed fires for greater responsiveness and lethality
- Suppressive and special purpose fires are still very important
- Enemy dismounted infantry, mortars and long-range MRLs are very challenging target sets
- Effects coordination and fire delivery are both becoming more complex
- Potential to better balance most dangerous targets and high pay-off targets

Future Fires

- ***Responsive*** – in providing ***on-demand, integrated*** fires and effects to Joint and Combined Arms formations ***at every echelon***
- ***Lethal*** – ***through networked battle command***, greater access and enhanced sensors, and a ***wider suite of capabilities***
- ***Survivable*** – ***shared situational understanding*** and ***embedded active protection***
- ***Deployable*** – as ***integral elements*** of maneuver formations with the ***same level of tactical mobility and strategic deployability***
- ***Agile*** – enabling ***rapid tailoring of capabilities*** for the mission
- ***Versatile*** – greater contributions ***across the spectrum of operations*** and ***in all environments***
- ***Sustainable*** – ***more efficient*** target attack and ***greater commonality*** to the force reduce logistics demand

FA Materiel Transformation



Current Delivery Systems

Maintain

Recapitalize

- Paladin Digital Fire Control System
- MACS storage racks
- Halon replacement
- Complete the fleet by FY10

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Future Delivery Systems

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Current Munitions

Area

- Cannon
- Rocket
- Missile

DPICM concerns

Copperhead

- Operational employment issues
- 16K inventory

Special Purpose

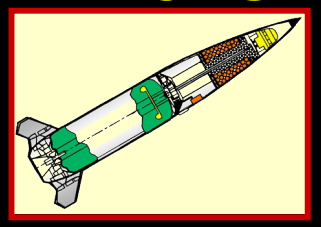
Capability Deficiencies

- Smoke
- Illumination

SADARM

- Very effective in OIF
- Extremely limited quantities

ATACMS



- Used extensively due to precision
- SOF munition of choice in OIF
- First use of QRU and Block 1A

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Future Munitions

Precision

FY 06

Excalibur as cannon technology carrier

GMLRS rocket as technology

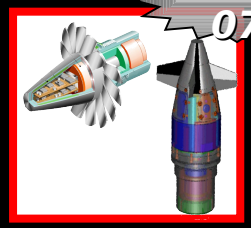
FY 06

- < 10M CEP
- > 70km range

Developed "smart" submunitions

- SMart 155
- BONUS
- SADARM PI

FY 07

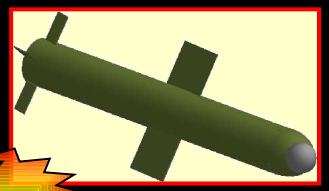


Course Correcting Fuzes

- Near-precision with 25-50 CEP

Hit to Kill

Precision Attack Missile



FY 10

- 40km range
- Multi-mode seeker
- Anti-armor capability

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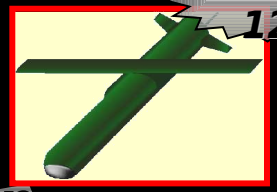
Future Munitions

Loitering Capability

Loiter Attack Missile as technology carrier

FY 12



Discriminating Capability

Enhanced Special Purpose

ACAAP

FY 06

- HE
- MS Smoke
- IR Illum

- 105MM
- 155MM

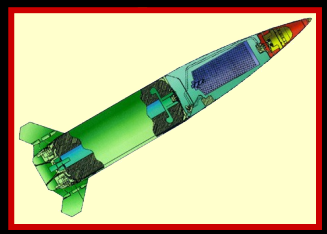
New Non-Lethal Capabilities

- Personnel suppression
- Area denial
- Equipment suppression

FY 10

Malodorant in M864

ATACMS



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Current Target Location

Knight

- **Survivability issues**
- **Optics inferior to supported maneuver**

MELIOS

G/VLLD

Stryker FSV

- **Superior platform**
- **Optics inferior to supported maneuver**

M7 BFIST

A3 BFIST

- **Great survivability**
- **Optics inferior to supported maneuver**

COTS DIOPTIC PFED

- **VIPER**
- **MARK**

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Future Target Location

FY 05

Knight with FS3

FY 05

LLDR

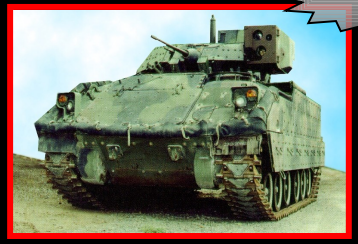
- 35 lbs (two man carry)
- 80m TLE at 10km
- Range - 100-9,995 M / ±5 m
- Eye-safe
- 2d Gen FLIR

Stryker with FS3

FY 05

- LRAS3 with LDM
- Designate out to 14km
- 2d Gen FLIR
- Day Video Camera

FY ??



A3 BFIST with FS3

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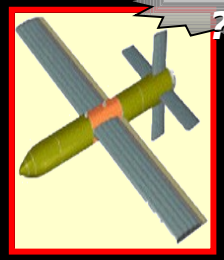
Future Target Location

FY ??

DIOPTIC

- 3-7 lbs
- 50m TLE @ 7.5 km
- Target grid display
- Digital compass
- Eye safe laser rangefinder
- Tgt designation (Block III)

FY ??



Class III UAV

- 25m TLE
- Target designation

FCS

FY 08

- 25m TLE
- Target designation

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Current Radars

Q-36 V8

- Range issue for artillery (14km@.4% of range for 155mm)
- Single mode coverage
- High false location rate (1 per 4 Hours)
- Large footprint

Q-37 V8

- Deployability and mobility challenges (3- C-130s)
- Parts obsolescence
- 12 man crew

Lightweight Counter Mortar Radar

- 360 degree detection
- Mortars at 6,500m with 100m TLE
- Man packable & air droppable
- Wireless control by

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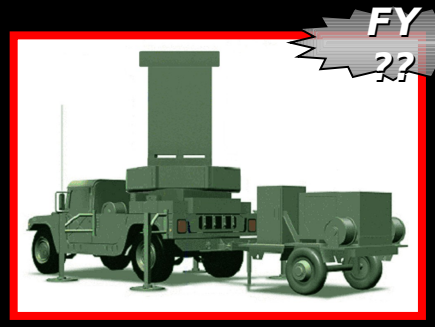
Future Radars

Enhanced Q-36 or STO MMR

- Extended range and improved accuracy (30K@.3% of range for 155)
- Simultaneous hostile and friendly mode
- Reduced false locations (1 per 12 hours)
- Single vehicle

Phoenix

- Improved range and accuracy (artillery = 60k@.25% of range)
- Improved deployability and mobility (single C-130 for mission essential equipment)
- Maximum use of



Unit of Action Multi-Mission Radar

- Counterfire
- Air defense surveillance
- AD Fire Control
- Air traffic control

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Current Location/Direction

Positioning And Determining System

- **Significant reliability issues**
- **Cost of parts**

Improved Positioning And Determining System

- **2000 hour reliability**
- **System costs less than PADS IMU**
- **Potential program**

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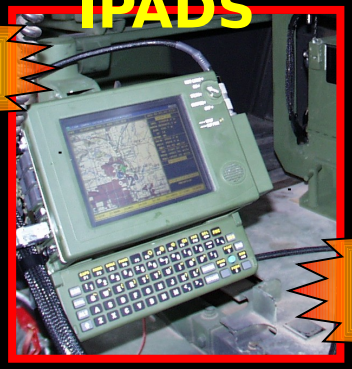
Future Location/Direction

Next Generation IPADS

No Surveyors



Embedded on Selected Vehicles

- **Smaller**
- **Even easier to use**
- **Any soldier can operate**

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Current Meteorology

MMS (AN/TMQ-42)

- No target area met
- Large logistics tail (up to 12 radiosondes per day)
- Parts obsolescence (LCU unsupportable)
- GPS radiosonde not SAASM compliant (processor needs upgrade to Marwin III)

Profiler Block I

- Provides target area met to 60km
- Met on demand
- Reduced logistics tail (4 radiosondes per day)
- SAASA compliant

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Future Meteorology

FY 08

Profiler Block II

- Target area met to 500km
- Not balloon dependent
- Single vehicle

FY 12??

Profiler Block III

- Embedded met
- No separate vehicle

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Current Battle Command

AFATDS 6.3.1

- **Tactical and technical fire direction**
- **Execution success in OIF**
- **Digital clearance of fires between services effective**
- **Comms links an issue over extended distances**
- **Exchange of FSCM and graphics still an issue**

CSA Focus for Battle Command

Top-Down Focus: CSA directed Army shift its funding efforts from developing Battle Command Architecture from its current orientation of developing solution from the Bottom-Up (4th ID and ABCS) to one focused on developing Architecture from the Top-Down. Expecting to stop development of the ABCS suite of software at the current Block IV and redirect all available funding (over $1B) to fielding a system down to brigades. CSA wants to start with the FY 04 funding and is expecting a ECP (or PCP) for POM 05-09 to change the funding emphasis as fast as we can. CSA wants to focus on what the Commander's Needs are (Top 7).

1. Friendly locations
2. Current enemy situation (SALUTE/SPOT/LEAD Consolidated)
3. Running estimate (current combat power/future combat power/CCIR/BOS staff estimates)
4. Graphic control measures
5. Fragos
6. Commander's SITREP
7. Fire support coordination measures/capabilities overlay

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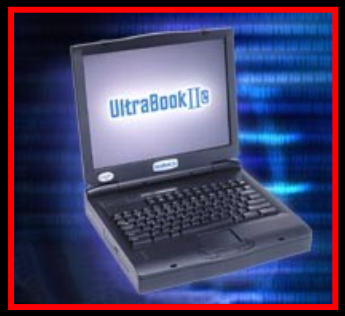
Future Battle Command



Notebook

LWTFDS

AFATDS 6.4

- Critical FS maintenance
- Interoperability
- OIF lessons learned
- Expanded communications
- Battle command on the move
- ADOCS, JBFSA, JWARN

Future Force Battle Command System

- One integrated system that subsumes current ABCS suite
- Critical enabler for “networked fires”
- Execution centric system focused on the commander’s needs for Battle Command
- Fully nested with Joint systems and architectures
- Requirements being defined under Joint Command and Control (JC2) with FF BCS as Army part of the requirement

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Our Focus and Challenges

- Rapidly field enhanced warfighting capabilities in current force while accepting risk in certain areas
- Equip and field the Stryker force applying lessons to the Future Force
- Transform the branch to the qualities needed for the Future Force
- Make the right choices among competing priorities

Very dynamic time and process that we are fully engaged in

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Preliminary Total TAA Impact

SRC	TITLE	RSTR	#	1	2	3	4	TOTAL
06365A100	FA BN, 155MM SP	593	-2		-1186			-1186
DIVISION AND BELOW TOTALS			-2	0	-1186			-1186
06402L000	HHB, FA BDE	109	-9	-109	-872			-981
06425A100	FA BN, 155MM, TOWED	463	-13	-463	-5556			-6019
06455A000	FA BN, 155SP, CA	493	-3	-493	-986			-1479
06465A000	MLRS BN	399	-7	-399	-2394			-2793
06465A100	HIMARS BN	394	7	788	1970			2758
06602A000	BTLFD COORD DET	40	1	40				40
06604A000	GRND LNO DET	2	-7		-14			-14
EAD TOTALS			-31	-636	-7852			-8488
GRAND TOTALS			-33	-636	-9038			-9674

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